IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Marcos Nogueira NOVAES.

Serial No.: 09/893,789 Group Art Unit: 2162

Filed: June 29, 2001 Examiner: Ly, A.

For: **METHOD AND SYSTEM FOR SPATIAL INFORMATION RETRIEVAL FOR HYPERLINKED DOCUMENTS**

Commissioner of Patents
Alexandria, VA 22313-1450

APPELLANT'S BRIEF ON APPEAL

Sir:

Appellant respectfully appeals the rejection of claims 2-17, 22, 24-39, 44, 45, and 47-51 in the Office Action dated September 29, 2006. A Notice of Appeal was timely filed on December 28, 2006.

I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corporation, assignee of 100% interest of the above-referenced patent application.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant, Appellant's legal representative or Assignee which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 2-17, 22, 24-39, 44, 45, and 47-51 are all the claims presently pending, since claims 1, 23, and 52-55 are canceled.

Claims 2-17, 22, 24-39, 44, 45, and 47-51 stand rejected under 35 U.S.C. § 101.

Claim 17 stands rejected under 35 U.S.C. § 112, first paragraph.

Claims 2-10, 22, 24-32, 44, 45, and 47-51 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Fox (U.S. Publication No. 2003/0130998), further in view of Egendorf (U.S. Patent Publication No. 2003/0177111A1).

Claims 11-17 and 33-39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Fox/Egendorf, further in view of Egger (U.S. Patent No. 6,233,571).

All four rejections are being appealed.

IV. STATUS OF AMENDMENTS

A Request for Reconsideration Under 37 CFR §1.116 was filed on November 29, 2006. Therefore, the version of the claims in the Appendix reflects the claim amendments of the Amendment Under 37 CFR §1.111 filed on July 20, 2006.

In the Advisory Action mailed on December 7, 2006, the Examiner indicated that the arguments in the Request for Reconsideration Under 37 CFR §1.116 were not persuasive and that all rejections were maintained.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellant's invention, as disclosed and claimed in independent claim 2 recites a computer-implemented method of indexing data blocks according to a collection of subject words of the data blocks, including: constructing a N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words of the data blocks; and traversing data block links leading to discovery of cross-subject affinities.

As described, the present invention provides the advantage of calculating cross-subject affinities between documents, which, in turn, provides the capability of reducing

the amount of time that a user needs to find the most significant documents retrieved from remote network systems, such as the World Wide Web, etc.

That is, the present invention allows the user to shift focus during review of the documents, thereby permitting a navigation through the documents in an efficient manner to locate those documents of most interest to the user, in contrast to the conventional manner of navigation shown in Figure 1, wherein, upon reaching a dead end, the user must back up along the previous navigation path to begin another check of the query search result documents, as exemplarily shown in Figure 2.

With these aspects, the invention provides a new navigation pattern of the present invention which is referred to herein as "*Spatial Navigation*" (see application at pages 12-13), although it is also noted that this navigation model is not limited to the navigation of data in the Web, which implies the traversal of HTML links. It can be used in any kind of data base. Further, it can also be used to navigate documents in the World Wide Web *without* relying on the traversal of Web links.

Thus, in the invention, a method (and system), including a graphical facility, are provided in which data blocks are organized according to a spatial function derived from the metadata and hyperlink information which is contained within each block.

The spatial function used in the data organization method is exemplarily derived from a distance function which represents a measure of the relevance of any two data blocks indexed in the system. This method has applications in the fields of data mining and information retrieval and can also assist in the navigation and retrieval of data blocks stored in the World Wide Web (WWW).

For example, the invention allows mapping any document into a spatial coordinate such that the spatial coordinate can be viewed according to the content of the document. If two documents are in close proximity in the physical plane, then the two documents are related (e.g., relevant to one another). Thus, the search engine operates by mapping into spatial coordinates all of the pages which are taken in (e.g., via a crawler process scanning Web pages or the like, etc.), and calculates the coordinates of the page in the spatial plane.

When a user poses a query for some page, the system begins at the insertion point and "inserts" the user into this virtual space in a certain coordinate according to the search

criteria that was stipulated. At this time, the new paradigm for retrieving the document in the spatial plane according to the invention is performed such that a radius is calculated from the insertion point (based on the search criteria) and a proximity list is generated. The proximity list indicates the document(s) which are adjacent (near the spatial plane/coordinates) the insertion point.

It is noted that the invention uses a term-by-document matrix, but now with the present invention every row is associated with each other. In contrast, the rows in the conventional techniques are looked at in isolation (e.g., look at "IBM" alone and determine which documents have high counts, look at a second row for "XYZ" and determine which documents have a high score, etc.). However, as discussed below, the invention relates every row to one another.

For example, as discussed in the application at page 12, assuming a first row is "IBM", a second row is "Patents", a third row is "filed", and a fourth row is "Sun".

In such an example, a page which relates to IBM and patents, would have a very low count. However, if a second page included all of the patents in the world, then the count would be very high since not only IBM's patents are being looked at.

However, because the count for the word "Sun" is higher in the second page, this makes the second page more distant than the first page which related only to IBM. Thus, the invention uses terms, not necessarily asked for by a user, to relate any two documents. Moreover, a direction of a user's interest can be measured by correlating all of the terms used.

These aspects of the present invention permits a user to "look around" , using the graphical facility exemplarily shown in Figures 7 and 8, in the navigation space at those documents nearest to the user's current location in the navigation space, thereby permitting the user to move horizontally in the navigation space (see Figure 4) in contrast to the conventional navigation movement shown in Figure 2 and more rapidly locate the document(s) of most interest.

Such features as defined by the claimed invention are not taught or suggested by any other prior art of record.

The bases in the specification for the independent claims are as follows:

2. (Rejected) A computer-implemented (Figure 11) method of indexing data blocks according to a collection of subject words of the data blocks, comprising:

constructing a N-dimensional coordinate space (Figure 5), wherein N is a cardinality of the collection of subject words of the data blocks (lines 14-16 of page 15; lines 17-18 of page 20); and

traversing data block links leading to discovery of cross-subject affinities (lines 20-22 of page 20).

22. (Rejected) A computer-implemented (Figure 11) method for indexing a database, comprising:

constructing a coordinate system (Figure 5; lines 14-16 of page 15);

mapping documents of said database into the coordinate system to determine a physical closeness of first and second documents of said database (Figure 5; lines 17of page 20 through line 7 of page 21); and

traversing data block links leading to discovery of cross-subject affinities (lines 20-22 of page 20).

24. (Rejected) A computer system (Figure 11) for indexing data blocks according to a collection of subject words, comprising:

a construction unit for constructing a N-dimensional coordinate space, wherein N is a cardinality of a collection of subject words (lines 14-16 of page 15; Figure 5); and

traversing data block links leading to discovery of cross-subject affinities (lines 20-22 of page 20).

44. (Rejected) A computer system (Figure 11) for indexing a database, comprising:

a unit (Figure 5)for constructing a coordinate system;

a mapping unit (Figure 5) for mapping documents of said database into the coordinate system to determine a physical closeness of first and second documents of said

database, wherein indexing said database is performed according to a collection of subject words, such that said coordinate system comprises an N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words;

a determining unit for determining a closeness of any two data blocks in said database (Figure 6); and

a measuring unit for measuring a distance function between data blocks (Figure 6),

wherein said distance function is representative of an affinity between two data blocks,

wherein each said document is represented as a vector which has a position in an N-dimensional coordinate space of N subject words (line 14 of page 12), such that a relationship is independent of any other document, and

wherein a document can be added to the coordinate system without impacting a measurement of any other document.

45. (Rejected) A computer-readable medium (Figure 12) tangibly embodying a program of recordable, machine- readable instructions executable by a digital processing apparatus to perform a computer-implemented method of indexing data blocks according to a collection of subject words, said method comprising:

constructing a N-dimensional coordinate space (Figure 5), wherein N is a cardinality of a collection of subject words, and

traversing data block links leading to discovery of cross-subject affinities (Figure 5; lines 20-22 of page 20),

wherein each data block represents a document and each said document is represented as a vector which has a position in the N-dimensional coordinate space of N subject words (line 14 of page 12), such that a relationship is independent of any other document, and

wherein another document can be added to the coordinate space without impacting a measurement of any other document.

47. (Rejected) A computer-readable medium (Figure 12) tangibly embodying a program of recordable, machine- readable instructions executable by a digital processing apparatus to perform a computer-implemented method of indexing a database, said method comprising:

constructing a coordinate system (Figure 5);

mapping documents of said database into the coordinate system (Figure 5) to determine a physical closeness of first and second documents of said database, wherein indexing said database is performed according to a collection of subject words (line 14 of page 12), such that said coordinate system comprises an N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words; and

traversing data block links leading to discovery of cross-subject affinities (lines 20-22 of page 20).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellant presents the following issues for review by the Board of Patent Appeals and Interferences:

ISSUE 1: THE STATUTORY SUBJECT MATTER REJECTION

Whether the rejection under 35 U.S.C. § 101 can be maintained for claims 2-17, 22, 24-39, 44, 45, and 47-51, in view that the method of the invention as a whole clearly provides a result that is useful, concrete and tangible, and when the claims also include apparatus/system, and Beauregard claims.

ISSUE 2: THE ENABLEMENT REJECTION

Whether the rejection under 35 U. S.C. § 112, first paragraph, can be maintained for claim 17, when the plain meaning of the language of the claim itself precludes the interpretation upon which the Examiner relies for the rejection.

ISSUE 3: THE OBVIOUSNESS REJECTION FOR CLAIMS 2-10, 22, 24-32, 44, 45, AND 47-51, BASED ON FOX, FURTHER IN VIEW OF EGENDORF

Whether the rejection under 35 U.S.C. § 103(a) can be maintained, in view of the fact that primary reference Fox is not even directed to construction of an indexing of a plurality of data blocks within a database and is, therefore, non-analogous art, and that both the primary reference Fox and secondary reference Egendorf teach away from the claimed invention.

ISSUE 4: THE OBVIOUSNESS REJECTION FOR CLAIMS 11-17 AND 33-39, BASED ON FOX/EGENDORF, FURTHER IN VIEW OF EGGER

Whether the rejection under 35 U.S.C. § 103(a) can be maintained, in view of the fact that secondary reference Egger fails to overcome the deficiencies of Fox and Egendorf.

VII. ARGUMENTS

ISSUE #1: THE STATUTORY SUBJECT MATTER REJECTION

The Examiner alleges that the claimed invention is directed to non-statutory subject matter.

Specifically, the Examiner alleges that the claimed invention is abstract idea, which is not "real world" results. The Examiner further alleges that the claims are not producing tangible results due to performing mathematical processes, the processes consisting solely of mathematical operations do not manipulate appropriate subject matters. (Benson, 409 U.S. at 71-72, 175 USPQ at 676). Thus, the Examiner asserts that the type of mathematical subject matter does not entitle to patent protection or cannot constitute a statutory process.

Appellant respectfully submits that the Examiner clearly errs, since the Examiner's conclusion simply ignores the plain meaning of the claim language.

First, relative to claims 24-39, 44, and 50-51, these claims are directed to a machine and clearly statutory subject matter. Relative to claims 45 and 47, these claims are directed to computer-readable medium and are clearly statutory subject matter under *In re Beauregard*, 53 F.3d 1583 (Fed. Cir.,1995), wherein the USPTO conceded that such claims are directed toward patentable subject matter. The Examiner might want to check out US Patent 5,710,578 to Beauregard et al., that issued on January 20, 1998, having claims that today are often called "Beauregard claims."

Relative to method claims 2-17, 22, 48, and 49, the preamble of the independent claims clearly describe that the method is directed to a computer-implemented method related to documents in a database. As such, these claims are directed to technology that is clearly useful, concrete, and tangible.

If the USPTO did not believe that electronic database technology fails any of these three requirements declared as being the current standard for software-related inventions in *State Street* and *AT&T*, then the USPTO should demonstrate its belief by ceasing its use of its electronic patent database and revert to the shoes.

The present invention, if incorporated into the USPTO patent database, would permit an Examiner to move through the patents matching a search query in a manner

based upon which documents were considered as most relevant to the desired documents, as exemplarily demonstrated in Figure 4 of the present Application.

For the foregoing reasons, Appellant respectfully submits that all pending clearly are directed to statutory subject matter under 35 U.S.C. § 101.

Therefore, the Board is respectfully requested to remove this rejection.

ISSUE #2: THE ENABLEMENT REJECTION

Claim 17 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement.

The Examiner alleges that claim 17 "contains subject matter, which does not enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Because at the same time traversing by using hypertext link and by not using hypertext links, it cannot do simultaneously" (see Office Action at page 3; emphasis added).

First, Appellant notes that claim 17 clearly does not recite "at the same time traversing by using hypertext link and by not using hypertext links", or for that matter, that such is performed "simultaneously", as alleged by the Examiner. Appellant notes that the Examiner properly should consider the actual language of the claims, and not improperly read other limitations into the claims which are not recited in the claims.

In contrast to the Examiner's statement above, claim 17 clearly recites that the "*data blocks are selectively traversable by using hypertext links and by not using hypertext links*" (emphasis added).

Second, Appellant notes that, as ample case law has held, the test for enablement is whether one of ordinary skill in the art could practice (e.g., make and use) the invention (e.g., the claimed invention), without undue experimentation.

Clearly, one of ordinary skill in the art could practice (e.g., make and use) the invention (e.g., the claimed invention) of *selectively traversing* by using hypertext links and by not using hypertext links, without undue experimentation (e.g., see specification at page 15, lines 8-13; page 20, lines 1-9).

That is, one of ordinary skill in the art clearly would not consider the phrase "*selectively traversable by using hypertext links and by not using hypertext links*" to mean "simultaneously traversing", as alleged by the Examiner.

Thus, Appellant submits that one of ordinary skill in the art could practice (e.g., make and use) the invention (e.g., the claimed invention) of *selectively traversing* by using hypertext links and by not using hypertext links, without undue experimentation (e.g., see specification at page 15, lines 8-13; page 20, lines 1-9).

Indeed, the Examiner has not explained *why* one of ordinary skill in the art could not practice (e.g., make and use) the claimed invention of *selectively traversing* by using hypertext links and by not using hypertext links, without undue experimentation. Again, the actual language of the claims properly should be considered, and other limitations should not improperly be read into the claims.

Moreover, it is incumbent on the Examiner to identify what information is believed to be missing and why one skilled in the art could not supply the missing information without undue experimentation (e.g., see M.P.E.P. § 2164.04 and § 2164.06(a)). Appellant respectfully submits that the Examiner's conclusory statements do not meet the basic requirements for establishing a *prima facie* case of lack of enablement.

ISSUE #3: THE OBVIOUSNESS REJECTION FOR CLAIMS 2-10, 22, 24-32, 44, 45, AND 47-51, BASED ON FOX, FURTHER IN VIEW OF EGENDORF

Appellant respectfully submits that there are features of the claimed invention which are not disclosed or suggested by Fox and Egendorf, either individually or in combination. Therefore, Appellant respectfully traverses this rejection for at least the following reasons.

First, primary reference Fox does not teach or suggest taking documents from the database itself and developing an N-dimensional coordinate space of the documents of the database. The N-dimensional space in Fox relates only to the search query, an entirely different concept. Therefore, there is only one block (e.g., the search query) in Fox, so that no index of blocks is even desirable in Fox.

Because of this fundamental difference, there also is no discovery of cross-subject affinities of documents in Fox, and no need to do so, since Fox attempts only to match the search query with documents.

In contrast, the present invention develops an N-dimensional coordinate space involving all of the documents of the database. From the points in this coordinate space, as representing documents, the distance between the points determines the affinities between the documents of the database.

Secondary reference Egendorf fails to overcome this deficiency in primary reference Fox.

Hence, turning to the clear language of the claims, in Fox there is no teaching or suggestion of: :... computer-implemented method of indexing data blocks according to a collection of subject words of the data blocks, comprising: constructing a N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words of the data blocks ...."

Moreover, with respect to independent claim 2, the Examiner acknowledges that Fox does not teach traversing data block links leading to discovery of cross-subject affinities. As pointed out above, because of the fundamentally different goal in Fox, there is no reason for such cross-subject affinities.

The Examiner alleges that Egendorf teaches traveling information or data of a document's rank, that is the closer it will be placed to the beginning of the result list based on the count of the terms in the document for getting the affinity (sections 0036, 0057 and 0060).

Therefore, the Examiner alleges that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Fox with the teachings of Egendorf. The Examiner states that one having ordinary skill in the art would have found it motivated to utilize the use of traveling or traversing information to find out an affinity group the affinity as disclosed (Egendorf's section 0036 and 0060), into the system of Fox for the purpose of searching for information in a plurality of information sources and searching databases on the Internet, thereby, solving the problem

of finding current information in an increasingly broad, large scale in the Internet network (Egendorf's sections 0001 -0002 and 0052).

First, Appellant respectfully submits that it would not have been obvious to combine Fox and Egendorf, as alleged by the Examiner, to arrive at the claimed invention.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention (e.g., see M.P.E.P. § 2142.02, *citing* W.L. Gore & Associates, Inc., v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)).

A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention (e.g., see M.P.E.P. § 2144.05(III), *citing* In re Geisler, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997)).

As mentioned above, the Examiner alleges that Egendorf teaches "traveling information or data of a document's rank, that is the closer it will be placed to the beginning of the result list based on the count of the terms in the document for getting the affinity" (sections 0036, 0057 and 0060).

However, Appellant notes that Fox specifically teaches away from counting the terms in the document for getting an affinity because counting the terms in the document results in more computation time, since the frequency of counts must be updated or recomputed as new data is entered (e.g., see Fox at paragraph [0054], and paragraph [0055], lines 1-8).

Indeed, these teachings of Egendorf appear to be similar to the conventional methods and systems described by Appellant in the present application (e.g., see page 5, lines 4-9), and by Fox at paragraph [0054], and paragraph [0055], lines 1-8.

In contrast to Egendorf and the conventional methods and systems, the present invention discloses that a specific metadata method can be used to place the data blocks in the N-dimensional space to thereby ensure that the distance relationship between any two points reflects the "affinity" of the data stored at the specific coordinates (e.g., see specification at page 16, lines 2-5).

The present invention specifically discloses that a "data block is said to have "affinity" to another data block if both data blocks have high search score results for at least one subject. The mapping space has N dimensions, where N is the number of subjects. The distance relationship is the sum of the distances according to all subjects, and will therefore provide a meaningful measure of the affinity of any two data blocks" (e.g., see specification at page 16, lines 6-11).

The present invention discloses that the mapping relationship utilized to place the data blocks in the N-dimensional coordinate system is a key aspect of the present invention (e.g., see specification at page 16, lines 6-11; see also, e.g., page 16, line 12, to page 19, lines 16).

The present invention allows plotting documents in space based on their content which allows a user to quickly go to the documents and see their relationship (their affineness or "closeness") based on the calculation of the distance function, without traversing each link, without clicking on each link and without getting deeper and deeper into a search (e.g., a vertical search in which the user is forced to go to the top of the search time after time). Instead, according to the claimed invention, based on the proximity list, the user is able to traverse documents horizontally as opposed to only vertically, to find the document(s) most relevant to the information sought (e.g., see specification at page 20, lines 1-9).

It is noted that claims 2-10, 22, 24-32, 44, 45, and 47-51, respectively, define the above features of the invention.

Appellant submits that, by teaching counting the terms of the document, Egendorf clearly teaches away from the claimed invention, as well as the teachings of Fox.

Hence, Appellant respectfully submits that it would not have been obvious to combine Fox and Egendorf, as alleged by the Examiner, to arrive at the claimed invention.

Moreover, even assuming *arguendo* that such a combination would have been made, Appellant submits that there are features of claim 2 which are not disclosed or suggested by Fox and Egendorf, either individually or in combination.

As mentioned above, Egendorf merely teaches the counting of terms, which the Examiner compares to the claimed "*cross-subject affinities*".

However, as described above, the discovery of such cross-subject affinities according to the claimed invention is not based on the counting of terms, as in Egendorf.

Instead, the present invention allows plotting documents in space based on their content which allows a user to quickly go to the documents and see their relationship (their affineness or "closeness") based on the calculation of the distance function, without traversing each link, without clicking on each link and without getting deeper and deeper into a search (e.g., a vertical search in which the user is forced to go to the top of the search time after time). According to the claimed invention, based on the proximity list, the user is able to traverse documents horizontally as opposed to only vertically, to find the document(s) most relevant to the information sought (e.g., see specification at page 20, lines 1-9).

Thus, even assuming *arguendo* that it would have been obvious to combine Fox and Egendorf, the resulting combination of these references still would not teach or suggest all of the features of the claimed invention.

For the reasons set forth above, Fox and Egendorf, either individually or in combination, do not disclose or suggest all of the features of the claimed invention.

Therefore, the Board is requested to remove this rejection and to permit claims 2-10, 22, 24-32, 44, 45, and 47-51 to pass to immediate allowance.

ISSUE #4: THE OBVIOUSNESS REJECTION FOR CLAIMS 11-17 AND 33-39, BASED ON FOX/EGENDORF, FURTHER IN VIEW OF EGGER

Appellant respectfully submits that there are features of the claimed invention which are not disclosed or suggested by Fox, Egendorf, and Egger, either individually or in combination. Therefore, Appellant respectfully traverses this rejection for at least the following reasons.

First, for somewhat similar reasons as those set forth above, Appellant submits that it would not have been obvious to combine Fox and Egendorf, to arrive at the features of base claims 2 and 24, from which claims 11-17 and 33-39 depend.

Moreover, Appellant submits that Fox and Egendorf, either individually or in combination, do not disclose or suggest all of the features of claims 2 and 24, from which claims 11-17 and 33-39 depend.

Further, Egger does not make up for the deficiencies of Fox and Egendorf, and indeed, is not relied upon for such teachings.

Thus, Appellant submits that claims 11-17 and 33-39 also are patentable over Fox, Egendorf, and Egger, either individually or in combination.

For the reasons set forth above, Fox, Egendorf, and Egger, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 11-17 and 33-39 to pass to immediate allowance.

CONCLUSION

In view of the foregoing, Appellant submits that claims 2-17, 22, 24-39, 44, 45, and 47-51, all the claims presently pending in the application, are clearly enabled and patentably distinct from the prior art of record and in condition for allowance. Thus, the Board is respectfully requested to remove all rejections of claims 2-17, 22, 24-39, 44, 45, and 47-51.

Please charge any deficiencies and/or credit any overpayments necessary to enter this paper to Assignee's Deposit Account number 50-0510.

Respectfully submitted,

Dated: February 28, 2007

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VIII. CLAIMS APPENDIX

Claims, as reflected upon entry of the Amendment Under 37 CFR §1.111 filed on July 20, 2006:

1. (Canceled).

2. (Rejected) A computer-implemented method of indexing data blocks according to a collection of subject words of the data blocks, comprising:

constructing a N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words of the data blocks; and

traversing data block links leading to discovery of cross-subject affinities.

3. (Rejected) The method of claim 2, further comprising:

determining a closeness of any two data blocks in said database.

4. (Rejected) The method of claim 3, wherein said determining is performed according to an equation comprising:

$$D\ (p1, p2) = \sqrt{S_d (p1_d - p2_d)^2}$$

where D is a data block and p1, p2 are points in the N-dimensional space and S is a summation.

5. (Rejected) The method of claim 2, wherein affine documents are determined to be in closer proximity than non-affine documents in a mapping to N-space coordinates.

6. (Rejected) The method of claim 2, wherein all dimensions of said N-dimension coordinate space are considered.

7. (Rejected) The method of claim 2, wherein said data blocks comprise documents, said method further comprising:

building a term-by-document matrix and using all of the terms in N- dimensions in the coordinate space.

8. (Rejected) The method of claim 7, further comprising:

utilizing a column term in the term-by-document matrix as a vector.

9. (Rejected) The method of claim 2, further comprising:

measuring a distance function between data blocks, wherein said distance function is representative of an affinity between two data blocks.

10. (Rejected) The method of claim 2, further comprising:

building a proximity list for each data block.

11. (Rejected) The method of claim 2, further comprising:

navigating through data blocks based on a content of said data blocks, said navigating being performed by selectively moving from one page to another without traversing a hypertext link.

12. (Rejected) The method of claim 2, wherein said data blocks comprise any of Web pages, images, and database entries indexed such that each data block resides in a specific point in the N-dimensional coordinate space, and

wherein a placement of the data blocks in the coordinate space is performed such that data blocks which are relatively closer to each other are related to a same subject.

13. (Rejected) The method of claim 10, wherein the proximity list is ordered in ascending order of proximity, with a closest point being listed first.

14. (Rejected) The method of claim 10, further comprising reordering the proximity list by changing a coordinate of a current location.

15. (Rejected) The method of claim 10, wherein the proximity list is changed when a current position is changed to a position of a visited data block.

16. (Rejected) The method of claim 10, wherein a user selectively follows one of a link from a data block and follows an item in the proximity list, to navigate independently of links found in other data blocks.

17. (Rejected) The method of claim 2, wherein said data blocks are selectively traversable by using hypertext links and by not using hypertext links.

18-21. (Canceled)

22. (Rejected) A computer-implemented method for indexing a database, comprising:

constructing a coordinate system;

mapping documents of said database into the coordinate system to determine a physical closeness of first and second documents of said database; and

traversing data block links leading to discovery of cross-subject affinities.

23. (Canceled).

24. (Rejected) A computer system for indexing data blocks according to a collection of subject words, comprising:

a construction unit for constructing a N-dimensional coordinate space, wherein N is a cardinality of a collection of subject words; and

traversing data block links leading to discovery of cross-subject affinities.

25. (Rejected) The system of claim 24, further comprising:

a determining unit for determining a closeness of any two data blocks in said database.

26. (Rejected) The system of claim 25, wherein said determining by said determining unit is performed according to an equation comprising:

$$D(p1, p2) = \sqrt{S_d (p1_d - p2_d)^2}$$

where D is a data block and p1, p2 are points in the N-dimensional space and S is a summation.

27. (Rejected) The system of claim 25, wherein affine documents are determined by said determining unit to be in closer proximity than non-affine documents in a mapping to N-space coordinates.

28. (Rejected) The system of claim 24, wherein all dimensions of said N-dimension coordinate space are considered.

29. (Rejected) The system of claim 24, wherein said data blocks comprise documents, said construction unit comprising:

a unit for building a term-by-document matrix and using all of the terms in N-dimensions in the coordinate space.

30. (Rejected) The system of claim 29, further comprising:

means for utilizing a column term in the term-by-document matrix as a vector.

31. (Rejected) The system of claim 24, further comprising:

a measuring unit for measuring a distance function between data blocks, wherein said distance function is representative of an affinity between two data blocks.

32. (Rejected) The system of claim 24, further comprising:

a unit for building a proximity list for each data block.

33. (Rejected) The system of claim 24, further comprising:

a navigation unit for navigating through data blocks based on a content of said data blocks, said navigating being performed by selectively moving from one page to another without traversing a hypertext link.

34. (Rejected) The system of claim 24, wherein said data blocks comprise any of Web pages, images, and database entries indexed such that each data block resides in a specific point in the N-dimensional coordinate space, and

wherein a placement of the data blocks in the coordinate space is performed such that data blocks which are relatively closer to each other are related to a same subject.

35. (Rejected) The system of claim 32, wherein the proximity list is ordered in ascending order of proximity, with a closest point being listed first.

36. (Rejected) The system of claim 32, further comprising:

a reordering unit for reordering the proximity list by changing a coordinate of a current location.

37. (Rejected) The system of claim 32, wherein the proximity list is changed when a current position is changed to a position of a visited data block.

38. (Rejected) The system of claim 32, wherein a user selectively follows one of a link from a data block and follows an item in the proximity list, to navigate independently of links found in other data blocks.

39. (Rejected) The system of claim 32, wherein said data blocks are selectively traversable by using hypertext links and by not using hypertext links.

40-43. (Canceled)

44. (Rejected) A computer system for indexing a database, comprising:

a unit for constructing a coordinate system;

a mapping unit for mapping documents of said database into the coordinate system to determine a physical closeness of first and second documents of said database, wherein indexing said database is performed according to a collection of subject words, such that said coordinate system comprises an N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words;

a determining unit for determining a closeness of any two data blocks in said database; and

a measuring unit for measuring a distance function between data blocks,

wherein said distance function is representative of an affinity between two data blocks,

wherein each said document is represented as a vector which has a position in an N-dimensional coordinate space of N subject words, such that a relationship is independent of any other document, and

wherein a document can be added to the coordinate system without impacting a measurement of any other document.

45. (Rejected) A computer-readable medium tangibly embodying a program of recordable, machine- readable instructions executable by a digital processing apparatus to perform a computer-implemented method of indexing data blocks according to a collection of subject words, said method comprising:

constructing a N-dimensional coordinate space, wherein N is a cardinality of a collection of subject words, and

traversing data block links leading to discovery of cross-subject affinities,

wherein each data block represents a document and each said document is represented as a vector which has a position in the N-dimensional coordinate space of N subject words, such that a relationship is independent of any other document, and

wherein another document can be added to the coordinate space without impacting a measurement of any other document.

46. (Canceled)

47. (Rejected) A computer-readable medium tangibly embodying a program of recordable, machine- readable instructions executable by a digital processing apparatus to perform a computer-implemented method of indexing a database, said method comprising:

constructing a coordinate system;

mapping documents of said database into the coordinate system to determine a physical closeness of first and second documents of said database , wherein indexing said database is performed according to a collection of subject words, such that said coordinate system comprises an N-dimensional coordinate space, wherein N is a cardinality of the collection of subject words; and

traversing data block links leading to discovery of cross-subject affinities.

48. (Rejected) The method of claim 2, wherein each data block represents a document and each said document is represented as a vector which has a position in the N-

dimensional coordinate space of N subject words, such that a relationship is independent of any other document.

49. (Rejected) The method of claim 2, wherein each data block represents a document and wherein a document can be added to the coordinate space without impacting a measurement of any other document.

50. (Rejected) The system of claim 24, wherein each data block represents a document and each said document is represented as a vector which has a position in the N-dimensional coordinate space of N subject words, such that a relationship is independent of any other document.

51. (Rejected) The system of claim 24, wherein each data block represents a document and wherein a document can be added to the coordinate space without impacting a measurement of any other document.

52-55. (Canceled).

IX. EVIDENCE APPENDIX

(NONE)

X. RELATED PROCEEDINGS APPENDIX

(NONE)